

Oil spillage boom

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Abstract of GB2250720

An oil containment boom comprises, as flotation means, a lightweight tube 1 containing urea-formaldehyde foam 3. The foam can be generated in situ at the site where the boom is required. The boom may also be ballasted by a water filled compartment 2 and may include a skirt portion.

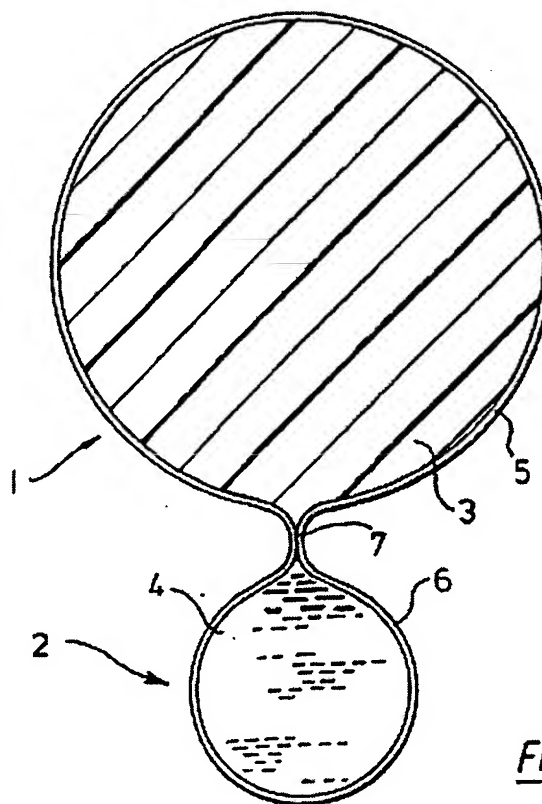


FIG.1

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(56) Documents cited
None

(58) Field of search
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(54) **Oil spillage boom**

(57) An oil containment boom comprises, as flotation means, a lightweight tube 1 containing urea-formaldehyde foam 3. The foam can be generated in situ at the site where the boom is required. The boom may also be ballasted by a water filled compartment 2 and may include a skirt portion.

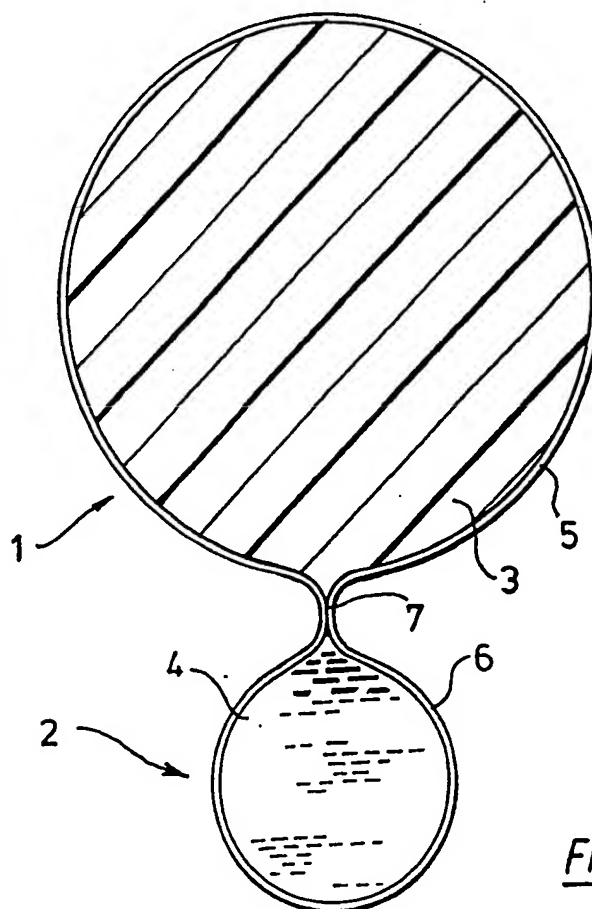
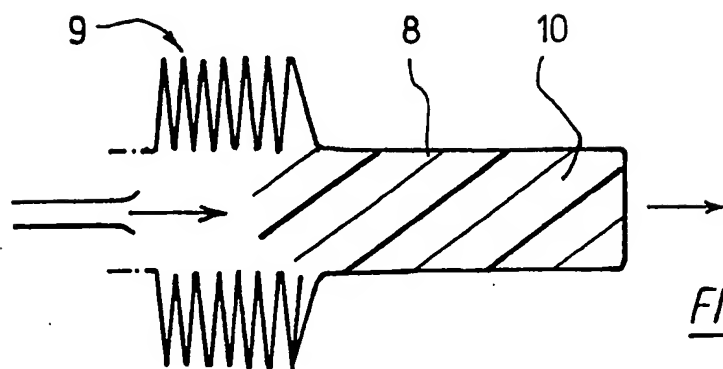
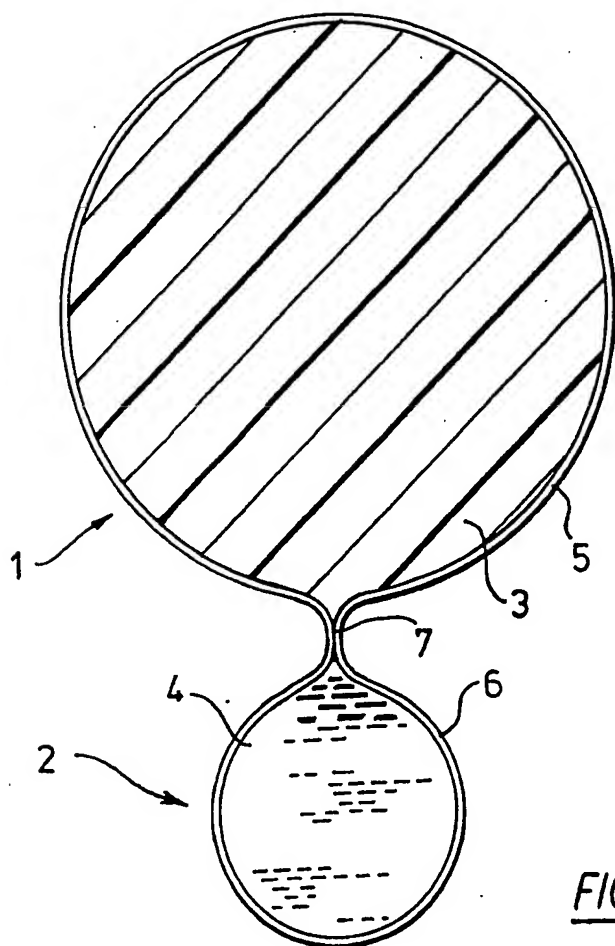


FIG.1

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Oil spillage boom

This invention relates to booms for the containment of oil spillage, and more particularly to such a boom which may be generated in situ when required.

There is a requirement to contain oil spillages as quickly as possible to minimise pollution. One convenient method of containment is to surround the spillage by a boom. Currently available devices are rigid and too bulky to be carried on board tankers. By the time they have been supplied from a central depot, spillage has spread and large scale damage has occurred.

US Patent No 4,124,981 describes an oil slick containment boom with a skirt on a tubular top, the latter holding closed hollow cylinders of closed cell lightweight plastics foam. This construction does not, however, lend itself to being produced in situ.

An object of the present invention is to facilitate manufacture of a boom immediately spillage occurs and put it in position quickly to minimise spread of the oil.

According to the present invention an oil containment boom comprises, as flotation means, a lightweight tube containing urea-formaldehyde foam.

The boom may include a skirt and ballast to assist in containment of the oil. In one suitable arrangement the boom consists of a flotation chamber filled with UF foam, a skirt and a ballasted chamber all prepared from one compartmented tubular sleeve.

In situ preparation of the boom comprises filling the outer case, sleeve or tube with UF foam which is generated continuously and injected by pumping or blowing into the folded or concertina-like sleeve, whilst the filled section is moved away to be placed into position around the spillage.

For speed and convenience this operation can be carried out on board a ship. In order to provide a ballasted section for the boom a second tube, in parallel with the first, can be simultaneously filled with water. The second tube can be provided by using a sleeve with an additional longitudinal seal, to provide two parallel compartments.

Alternatively, weights can be hung on the tube to sink it to the required depth.

The filling of the flotation compartment is urea formaldehyde foam which is easily and quickly generated, has a low cost, is produced as a fluid material which will easily fill the tube, is non-flammable, is sufficiently flexible to enable the boom to be formed in a circle, and is easily disposable after use.

The urea-formaldehyde foam may readily be produced by forming a wet foam containing an intimate mixture of a resin and a hardener for the resin both being initially in aqueous solution. The resin and hardener solutions are stored separately and only mixed at the time of foam generation when they are fed separately to a mixing head. A suitable mixing head is described in UK Patent No 1,582,446. The wet foam is injected into the tube and will cure rapidly in situ. The density of the foam may be less than 20Kg/m^3 .

The lightweight tube can be relatively low cost material such as extruded polyethylene tube, or it can be nylon or any other suitable non-porous material. Its strength needs to be sufficient to handle on board a tanker and fed over the side without tearing.

The boom may be put into the water from a ship's side, a shute or 'eye' being used to minimise the chance of damage. The dimensions of the tube forming a flotation compartment may be about approximately 1 metre in diameter and where a further water-filled tube is used this may be approximately 25cm diameter. The length can be continuous and cut off to suit, but for convenience in handling 50-100 metre lengths are visualised.

After use, provided the tube material is strong enough, it can be winched aboard, having cut open the end. The foam will spill out in small pieces and will disperse. Alternatively, if the tube is compressed the foam will be crushed to a small volume for ease of disposal.

The invention is illustrated by way of example only, in the accompanying drawings of which

Figure 1 is a cross-sectional view of a boom construction with parallel twin-tube construction and

Figure 2 is a schematic diagram showing a simple tube-filling method.

The oil containment boom shown in Figure 1 consists of a pair of tubular compartments (1,2), the upper compartment 1 forming a flotation chamber and being fitted with

urea-formaldehyde foam 3. The lower compartment 2 is for ballasting purposes and is filled with water 4.

The tubes (5,6) which form the compartments are made from a plastics sheet material such as polyethylene or nylon and may be formed from a single larger tube by the provision of a longitudinal seal (eg a weld) at 7.

If desired two or more such longitudinal seals can be provided to create a skirt portion (not illustrated) between the two filled compartments (1,2).

In preparing the boom in situ as illustrated in Figure 2, a tube 8 stored in concertina form 9 is simultaneously filled with urea-formaldehyde foam 10 injected from a known foam generator (not shown) and drawn away to be used.

CLAIMS

1. An oil containment boom comprising, as flotation means, a lightweight tube containing urea-formaldehyde foam.
2. An oil containment boom according to claim 1 which consists of a flotation chamber filled with urea-formaldehyde foam and a ballasted chamber prepared from one compartmented sleeve.
3. An oil containment boom according to claim 2 which also includes a skirt portion.
4. An oil containment boom substantially as described herein with reference to any one of the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

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9027071.1

Relevant Technical fields

(i) UK Cl (Edition K) B7A (AAT)

(ii) Int Cl (Edition 5) E02B

Databases (see over)

(i) UK Patent Office

(ii)
Online Database: WPI

Search Examiner

B J Price

Date of Search

27 March 1991

Documents considered relevant following a search in respect of claims

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| Category (see over) | Identity of document and relevant passages | Relevant to claim(s) |
|------------------------|--|-------------------------|
| | None | |

| Category | Identity of document and relevant passages | Relevant to claim(s) |
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